

Science Activities within the Office of Solid Waste and Emergency Response

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OSWER is a multidisciplinary, multimedia office

- Science activities occur across OSWER's programs
 - Superfund
 - Solid Waste
 - Technology Innovation
 - Brownfields
 - Underground Storage Tanks
 - Chemical Emergency Preparedness and Prevention

Goal 5 Research in ORD

| | FY 03 Pres Budget (Thousands of Dollars) |
|-----------|---------------------------------------------|
| OIL | \$909.9 |
| LUST | \$696.0 |
| Superfund | \$111,168.0* |
| S&T | \$9,548.7 |
| Total | \$122,322.6 |

*Includes \$75 Million for Building Decontamination Research, SBIR and IRIS that are also housed in Goals 7 & 8.

Science Activities in OSWER are Conducted Across Broad Areas

- Human Health
- Ecological Health
- Multimedia Fate and Transport
- Remediation Technology
- Monitoring Technology
- Pollution Prevention
- Social Science
 - **Economic Cost / Benefit Assessment**
 - **Brownfields Redevelopment**

Science Activities in OSWER

■ Homeland Security

- Development of analytical methodologies to characterize constituents
- Rapid Risk Assessment to quickly assess emergency situations
- Safe, effective and efficient disposal of waste from disasters/emergencies

Science Activities in OSWER

- **Brownfields Redevelopment**
 - **Case studies on successful redevelopment**
 - **Benefits of Brownfields redevelopment to local communities (tax base, public health, job creation)**
 - **Impacts of Brownfields reuse on urban sprawl**
 - **Environmental insurance in Brownfields revitalization**
 - **BF Technology Support program (jointly operated with ORD)**
 - **BF Technology Primers on site types and approaches (e.g. Phytoremediation)**

Science Activities in OSWER

- Resource Conservation Challenge
 - Waste minimization prioritization tools
 - » Research on top 30 chemicals for waste minimization and green chemistry
 - » Based on toxicity and persistence (PBT)
 - » Human toxicity and ecological toxicity
 - » Research on the disposal of electronic waste

Science Activities in OSWER

- Hazardous waste treatment and support
 - Model of Multi Media, Multi Pathway, Multi Receptor (3MRA) sent to SAB for review
 - Bioreactor research for improved engineering of municipal landfills
 - Adequacy of leach testing procedures (TCLP)
 - Long term stability of constituents in stabilized matrices
 - Bioavailability of constituents under various conditions
 - Technical Support Center for RCRA Corrective Action

Science Activities in OSWER

- Remediation Technologies Development Forum
 - Prioritizing remediation technology development needs
 - Establishing and overseeing action teams to plan and implement collaborative research
 - Foster public-private partnerships

Science Activities in OSWER

- Monitoring and measurement at waste sites
 - Improved approaches to optimize ground water monitoring
 - Research on heterogeneous and fractured groundwater flow
 - Research on metal speciation in soil and ground water
 - Characterization and remediation of non-aqueous phase liquids (DNAPL/LNAPL)

Science Activities in OSWER

- Contaminated Sediments Science Plan
 - Coordination and integration of contaminated sediment science activities across the Agency
 - SAB Review in October 2002
- Contaminated Sediment Collaborative Research Effort with ORD
 - Bioaccumulation and Fate and Transport (F&T) Modeling
 - Chemical, Physical and Biological Monitoring - Methods to characterize/assess existing conditions, determine remediation alternatives, track changes, determine if post-remediation goals have been achieved
 - "Risk Management" - Document effects of remediation alternatives and develop new alternatives

Science Activities in OSWER

- Development of Ecological Soil Screening Levels
 - Generic soil screening levels for up to 24 chemicals
 - Protective of mammalian, avian, plant, and soil biota
 - Collaboration with Environment Canada, DOE, Army, Navy, Air Force, states, industry, academia, and consulting
 - Interim Final Screening Levels expected in March, 2003

Science Activities in OSWER

- Asbestos Cancer Risk Assessment Methodology
 - **Goal:** To conduct a peer consultation workshop to solicit feedback on the proposed methodology for the cancer risk assessment
 - February 25-27, 2003
- Asbestos Mechanisms of Toxicity Workshop
 - **Goal:** Provides support for the development of the IRIS update on Asbestos
 - May 2003 Workshop

Science Activities in OSWER

- Development of Consensus Toxicity Information
 - Perchlorate, asbestos, TCE, PAHs, DCE
- Guidance Documents and Directives
 - Guidance for Comparing Background and Chemical Concentration in Soil for CERCLA Sites
 - Draft Supplemental Guidance for Dermal Risk Assessment (RAGS Volume I, Part E)
 - Contaminated Sediment Remediation Guidance for Hazardous Waste Sites

Science Activities in OSWER

- Developing and Evaluating Distribution for Probabilistic Risk Assessment:
 - Discusses critical attributes for distribution evaluation
 - exposure duration
 - water intake rate
 - body weight
- Interagency Agreement published in September 2002

Science Activities in OSWER

- Emerging Research Interests
 - Homeland Security
 - Vapor Intrusion Guidance
 - Perchlorate
 - Asbestos
 - Biotransfer factors for Organic Chemicals
 - Risk-Based Emissions Modeling of Communities